

## Publication

## Anti-MOG antibodies are present in a subgroup of patients with a neuromyelitis optica phenotype

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Background: Antibodies against myelin oligodendrocyte glycoprotein (MOG) have been identified in a subgroup of pediatric patients with inflammatory demyelinating disease of the central nervous system (CNS) and in some patients with neuromyelitis optica spectrum disorder (NMOSD). The aim of this study was to examine the frequency, clinical features, and long-term disease course of patients with anti-MOG antibodies in a European cohort of NMO/NMOSD. Findings: Sera from 48 patients with NMO/NMOSD and 48 patients with relapsing-remitting multiple sclerosis (RR-MS) were tested for anti-aquaporin-4 (AQP4) and anti-MOG antibodies with a cell-based assay. Anti-MOG antibodies were found in 4/17 patients with AQP4-seronegative NMO/NMOSD, but in none of the AQP4-seropositive NMO/NMOSD (n = 31) or RR-MS patients (n = 48). MOG-seropositive patients tended towards younger disease onset with a higher percentage of patients with pediatric (<18 years) disease onset (MOG+, AQP4+, MOG-/AQP4-: 2/4, 3/31, 0/13). MOG-seropositive patients presented more often with positive oligoclonal bands (OCBs) (3/3, 5/29, 1/13) and brain magnetic resonance imaging (MRI) lesions during disease course (2/4, 5/31, 1/13). Notably, the mean time to the second attack affecting a different CNS region was longer in the anti-MOG antibody-positive group (11.3, 3.2, 3.4 years). Conclusions: MOG-seropositive patients show a diverse clinical phenotype with clinical features resembling both NMO (attacks mainly confined to the spinal cord and optic nerves) and MS with an opticospinal presentation (positive OCBs, brain lesions). Anti-MOG antibodies can serve as a diagnostic and maybe prognostic tool in patients with an AQP4-seronegative NMO phenotype and should be tested in those patients.

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